

STATUS AND DISTRIBUTION OF AASE'S ONION (ALLIUM AASEAE),
A FEDERAL CANDIDATE SPECIES,
ON ADA COUNTY LANDS IN SEAMAN GULCH

by

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ABSTRACT

Aase's onion (Allium aaseae) is a Category 1 candidate species for listing under the Endangered Species Act. It occurs on land owned by Ada County in Seaman Gulch, north of Boise, that is used as the county landfill and an adjacent 80 acre BLM isolated tract, which Ada County wants to purchase for inclusion in the landfill. The BLM cannot sell the tract without proper mitigation for loss of a candidate species' habitat. The Idaho Natural Heritage Program was contracted by Ada County to conduct a field investigation of Aase's onion on Ada County land in and around Seaman Gulch and locate protectable populations to be used as mitigation.

Numerous populations of Aase's onion were found on Ada County land on either side of lower Seaman Gulch. A summary of all information on Aase's onion in the Heritage Program's data base indicates that it occurs at nearly 400 sites (populations or subpopulations) with an estimated total of over one quarter of a million individuals. Despite this rather impressive figure, threats to the long-term existence of Aase's onion are numerous and varied. The in situ conservation strategy being developed for Aase's onion is discussed. Recommendations are made concerning Ada County's role in this strategy via a preserve in Seaman Gulch.

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INTRODUCTION

Aase's onion (Allium aaseae) is a Category 1 candidate species for listing as threatened or endangered under the Endangered Species Act of 1973 (U.S. Fish and Wildlife Service 1985). It is presently known to occur from about Emmett, southeast to the Boise foothills, with two outlying populations along the Boise River near Arrowrock Reservoir and on Danskin Peak (Appendix 1).

Aase's onion occurs on land owned by Ada County in Seaman Gulch, north of Boise, that is used as the county landfill and an adjacent 80 acre BLM isolated tract. The BLM parcel is in a strategic location and in 1986, Ada County approached the BLM concerning the purchase of the tract for inclusion in the landfill. Since a federal candidate species occurs on the tract, the BLM cannot dispose of the parcel from the public domain without proper mitigation. The Idaho Natural Heritage Program was contracted by Ada County in 1986 to conduct a field investigation of Aase's onion on Ada County land in and around Seaman Gulch. Objectives of the investigation are to:

- (1) Inventory Ada County land in Seaman Gulch during the Spring of 1987.
- (2) Gather data on the distribution, population size, and potential for long-term viability of the onion on all areas in which it is found.
- (3) Locate protectable population(s) of Aase's onion on Ada County land which appears to have prospects for long-term viability.
- (4) Coordinate project with the U.S. Fish and Wildlife Service and the Bureau of Land Management so that the acquisition of the land necessary for waste management in Ada County is facilitated.
- (5) Prepare written report of results for Ada County Solid Waste Management.

BACKGROUND

Aase's onion has been recognized as a species facing extinction for over 10 years (Packard 1979; Steele 1977; 1981). It is currently a Category 1 candidate for federal listing (U.S. Fish and Wildlife Service 1985), that is, the Fish and Wildlife Service has enough biological information on hand to proceed with listing Aase's onion as threatened or endangered under the Endangered Species Act.

There are two basic reasons why Aase's onion is considered to be in jeopardy: (1) it has a restricted distribution in terms of both geography (Appendix 1) and habitat, and (2) being located adjacent to a major population center, it faces numerous and varied threats.

Prentice (1988a) listed the following threats to Aase's onion populations:

1. Mining - Several populations are threatened by a silica sand mining operation near Emmett.
2. Housing developments - Many onion populations have been and are being destroyed by housing developments in the foothills adjacent to Boise.
3. Weed invasions - Competition from fall-germinating, Eurasian weeds appears to be significant enough to reduce vigor or even exclude some onion populations.
4. Off-road vehicles - Several populations are found in a designated motorcycle park near Emmett and are being negatively impacted. Populations throughout Aase's onions range are threatened by dispersed off-road vehicle activity.
5. Trampling - Trampling by domestic livestock appears to reduce the vigor of onion populations.

In addition, Ada County owns land containing numerous populations of Aase's onion, much of which is scheduled to be developed as the county landfill.

Prentice (1988a) estimated that 5% of known Aase's onion populations were lost to various pressures in 1987. She estimated that at this rate of loss, the species could become extinct in 20 years.

RESULTS OF FIELD INVESTIGATIONS

Inventories of Ada County land in early April 1987, revealed the presence of numerous populations on either side of the lower part of Seaman Gulch (see Appendix 2). Most of these are small (Class 1) populations with less than 100 individuals. Four are larger (Class 2) populations with between 100 and 1,000 individuals. All of the populations appeared to be of normal vigor with no foreseeable threats, other than possible landfill activities.

Since 1984, intensive field surveys throughout the range of Aase's onion by the Boise District BLM and Idaho Natural Heritage Program, have resulted in a greater understanding of its distribution and threats that it faces. All known information on the distribution and abundance of Aase's onion has been compiled and entered into the Heritage Program's data base. A summary of the data, as of 28 December 1988, is as follows:

- * We have **57 location records** in the data base, including
- * **393 sites** (populations or subpopulations),
- * with a estimated total of **260,050 individuals** of Aase's onion.

This is a conservative estimate since eight (8) of the location records have no estimate of population size.

In addition to population surveys, life history studies of Aase's onion have been conducted by the BLM in cooperation with Unimin Mining Corporation (Bolin and Rosentreter 1986; Prentice 1988b). This research has elucidated many autecological traits that will be helpful in future management of natural area preserves containing Aase's onion.

CONSERVATION STATUS AND RECOMMENDATIONS

Despite the rather impressive number of sites containing an estimated quarter of a million individuals of Aase's onion, numerous threats still jeopardize its long-term existence. Although ex situ conservation methods have been attempted through experimental plantings, in situ methods remain the most viable and cost-effective for long-term protection of the species. This method should involve three levels of protection for onion populations:

1. Establishment of a series (3 to 6) of core preserves throughout Aase's onion range to protect the best populations known. The preserve system will ensure that a reasonable amount of the genetic variation found within Aase's onion will be protected in perpetuity.
2. The careful management of as many of the remaining populations as possible in a multiple-use setting, involving less than total protection.
3. No protection of some populations with the assumption that they may eventually succumb to development pressures and be lost.

The Boise District BLM is currently preparing a Conservation Agreement with the U.S. Fish and Wildlife Service outlining the BLM's responsibility in the conservation of Aase's onion, including the establishment of three to four preserves on BLM land (Ann Debolt, District Botanist, Boise District BLM, personal communication, 1988)

Our survey of Ada County land in Seaman Gulch indicates that a tract in the southeast corner of the property would be a suitable preserve to be used as mitigation for the purchase and filling of the 80 acre BLM tract in section 7. The tract is southeast of the Seaman Gulch Road (see Appendix 3). A preserve in Seaman Gulch would fit in well with the in situ conservation strategy being developed for Aase's onion by preserving representative populations throughout its range.

The potential Ada County preserve contains six Class 1 and one Class 2 Aase's onion populations in an area that appears defensible from outside threats (Appendix 3). The BLM tract contains one Class 1, portion of another Class 1, and parts of two Class 2 populations (Appendix 2). It appears that populations protected in the Ada County preserve approximate those lost on the BLM tract only. The loss of Aase's onion on Ada County land elsewhere was not accounted for in this investigation.

If the county purchase of the BLM tract is approved, at least two options exist for the long-term protection of Aase's onion populations in a preserve on Ada County land:

1. Ada County must manage the preserve in perpetuity. To do this Ada County, the BLM, and the U.S. Fish and Wildlife Service must enter into a Conservation Agreement specifying the conservation actions that must be carried out by the County for long-term protection of the species on the preserve. A similar agreement, currently up for renewal, has been in place between the Service and the City of Boise Park Department for Aase's

onion populations in Military Reserve Park. The agreement lasts for a specified period of time (generally 3 to 5 years), whereupon it is reviewed and renewed.

2. If possible, exchange the 80 acre BLM tract in section 7 for the preserve area (Appendix 3). Thereafter, the BLM can manage that land as an Area of Critical Environmental Concern or a similar designation providing long-term protection to the onion.

To implement either of these options, there will have to be considerable coordination between the BLM, Fish and Wildlife Service, and Ada County. The BLM, however, has the ultimate responsibility for the management and conservation of candidate plant species on lands administered by them.

COORDINATION

The results and recommendations contained in an earlier version this report were reviewed by the following agency botanists:

Ann Debolt, Boise District, Bureau of Land Management
Bob Parenti, Boise Field Office, U.S. Fish and Wildlife Service
Carol Prentice, Boise District, Bureau of Land Management
Roger Rosentreter, Idaho State Office, Bureau of Land Management

Their suggestions and comments are appreciated and have been incorporated into the final report.

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APPENDIX 1

Distribution of Aase's onion (Allium aaseae).

(Portion of Boise 1° x 2° quadrangle)

Note: Boise River and Danskin Peak populations are not included on this map.

APPENDIX 2

Aase's onion populations on Ada County and BLM land
in the Seaman Gulch area.

(Portion of Eagle 7.5' quadrangle)

Key to Aase's onion population classes:

1 = Class 1, a population with less than 100 individuals.

2 = Class 2, a population with between 100 and 1,000 individuals.

APPENDIX 3

Proposed Aase's onion preserve in Seaman Gulch.

(Portion of Eagle 7.5' quadrangle, enlarged to 1 inch = 500 feet)

Key to Aase's onion population classes:

1 = Class 1, a population with less than 100 individuals.

2 = Class 2, a population with between 100 and 1,000 individuals.